Amendments to the Specification

Please amend the paragraph at page 17, lines 11-25 in the following manner:

Referring to FIG. 5, it can be seen that the GaN crystal 102B of the present embodiment shows a distinct and strong peak corresponding to the band edge of GaN at the wavelength of about 360 nm. Further, it can be seen that no other peak exists in the GaN single crystal 102B of the present embodiment. The result of FIG. 5 indicates that the GaN crystal 102B thus formed has a defect density of less than 10^2 - 10^3 [[cm^{-3}]] cm^{-2}. Thus, the GaN single crystal 102B is suitable for use as a bulk GaN substrate of various optical semiconductor devices including a laser diode and a light-emitting diode as noted already. Hereinafter, the GaN single crystal 102B will be called a GaN bulk crystal in view of application to a GaN bulk crystal substrate.

Please amend the paragraph bridging pages 20 and 21, in the following manner:

Similarly to the first embodiment, the GaN bulk crystal 102B formed according to the present embodiment has a defect density in the order of 10^2 - 10^3 [[cm^{-3}]] cm^{-2} or less. Thus, the GaN bulk crystal 102B is suitable for a bulk GaN substrate of various optical semiconductor devices including a laser diode and a light-emitting diode.

Please amend the paragraph bridging pages 22 and 23, in the following manner:

Similarly to the previous embodiments, the GaN bulk crystal 102B formed according to the present embodiment has a defect density of 10^2 - 10^3 [[cm^{-3}]] cm^{-2} or less. Thus, the GaN bulk crystal 102B of the present embodiment is suitable for use as a bulk GaN substrate of various optical semiconductor devices including a laser diode and a light-emitting diode.

Please amend the paragraph at page 33, lines 2-18 in the following manner:

Referring to FIG. 19, it can be seen that there is an excellent agreement between the observed structural factor and the calculated structural factor assuming the cubic zinc blende structure for the obtained GaN bulk crystal 102B. It can be safely concluded that the GaN bulk crystal 102B obtained in the present embodiment is a 100% cubic GaN crystal. From the

X-ray diffraction analysis, existence of hexagonal GaN crystal was not detected. Further it was confirmed that the cubic GaN bulk crystal 102B thus formed provides a cathode luminescent peak substantially identical with the spectrum of FIG. 5. In other words, the cubic GaN bulk crystal of the present embodiment contains little deep impurity levels or defects and has an excellent quality characterized by a defect density of 10^2 - 10^3 [[cm^{-3}]] $\underline{cm^{-2}}$ or less.

Please amend the paragraph at page 34, lines 7-12 in the following manner:

Referring to FIG. 20, the laser diode 150 is constructed on a GaN bulk crystal substrate 151 produced in any of the process explained before. More specifically, the GaN bulk crystal substrate 151 has a high crystal quality characterized by a defect density of 10^2 - 10^3 [[cm^{-3}]] $\underline{cm^{-2}}$ or less.

Please amend the paragraph bridging pages 39 and 40, in the following manner:

According to the present invention, it is thus possible to construct an active device such as an FET on a GaN substrate, by using the GaN bulk crystal for the substrate. As the GaN bulk crystal produced according to the present invention has an high crystal quality characterized by a defect density of 10^2 - 10^3 [[cm^{-3}]] $\underline{cm^{-2}}$ or less, the problem of severe leakage current that would occur when an FET is constructed on a conventional GaN epitaxial layer formed on a sapphire substrate or an SiC substrate, is successfully eliminated. Further, the construction of FIG. 21 is advantageous in view of the fact that the electron density of the two-dimensional electron gas induced in the channel layer 175 is increased due to enhanced piezoelectric effect and associated increase of degree of electron confinement into the channel layer. When the channel layer contains a high concentration of defects, there occurs a lattice relaxation and the effect of carrier confinement is degraded inevitably.